DOCUMENT RESUME

ED 209 902 EC 140 622

AUTHOR McKee, Barbara G.: Dowaliby, Fred J.
TITLE The Dimensions Used by Hearing Impaired Students to Make Judgements of Instructors and Courses: A Factor Analytic Study.
INSTITUTION National Technical Inst. for the Deaf, Rochester, N. Y.
SPONS AGENCY Department of Health, Education, and Welfare, Washington, D.C.
REPORT NO NTID-PS-33
PUB DATE Mar 80
NOTE 25p.: For related documents, see EC 140 611-630.

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS College Students: *Course Evaluation: *Deafness; Higher Education: *Student Attitudes: *Teacher Evaluation

ABSTRACT

The study involving 385 students enrolled in the National Institute for the Deaf investigated the dimensions used by hearing impaired students to make judgments about their instructors and whether these underlying dimensions are similar to those reported for hearing students. Data from a large scale field test of a student rating of instruction form were factor analyzed. The underlying dimensions of the instrument were identified, labeled, and then compared to the dimensions frequently reported in the literature on student rating of instruction. Results indicated a strong similarity between the dimensions used by hearing impaired students and their hearing counterparts in making judgments about instructors and courses. Tables with statistical data are appended. (Author/SB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED209902

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

The Dimensions Used by Hearing Impaired Students to Make Judgements of Instuctors and Courses: A Factor Analytic Study

Paper Series No. 33
March, 1980

Barbara G. McKee

Fred J. Dowaliby

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
NTID
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

NTID's principal goal in doing research is to influence the education, training and career placement of deaf citizens through systematic examination of issues related to deafness. As one part of NTID's total research effort, the Department of Research and Development conducts descriptive and experimental research. Research findings are used in the development of programs and materials in the areas of learning and instruction, personal and social growth, and career development of deaf students. This document was developed in the course of an agreement with the U.S. Department of Health, Education and Welfare.

EC 140622

ABSTRACT

This study addressed two questions: (1) What are the dimensions used by hearing impaired students to make judgments about their instructors? and (2) Are there underlying dimensions similar to those found in literature dealing with hearing students' ratings of instruction? Data from a large scale field test of a carefully designed student rating of instruction form was factor analyzed. The underlying dimensions of the instrument were identified, labeled, and then compared to the dimensions frequently reported in the student rating of instruction literature. Results indicated a strong similarity between the dimensions used by hearing impaired students and their hearing counterparts in making judgments about instructors and courses.

Practical Implications

1. Hearing impaired students do not see a course and instructor as simply "good" or "bad." They make more complex multidimensional judgments about their instructors and courses.

2. Students can and do make judgments about instructor skill that are not the same as their judgments about instructor personality.

3. The perceived difficulty level of the course does not appear to be strongly related to other course and instructor ratings.

4. The rating form used in this study appears to have acceptable psychometric characteristics and should yield reliable information for feedback to instructors.

5. Results of this study imply that the voluminous body of literature dealing with the reliability and validity of hearing students' ratings of instruction is relevant to the hearing impaired population.

Introduction

This study was guided by a question that arose out of efforts to evaluate courses and newly developed instructional materials at the National Technical Institute for the Deaf. Do deaf students' opinions of classroom instruction generally cluster into the same dimensions as those of hearing post-secondary students?

Although the past several years have seen a striking increase in the use of students' ratings of instruction, such ratings are hardly new. In 1924, students at Harvard University published the first booklet on student evaluation of courses entitled Confidential Guide to Courses. Also, in 1928 H. H. Remmers said of student ratings of instruction:

> 'The college exists because society desires that youth be taught,' said Ernest Hatch Wilkins in his inaugural address as president of Oberlin College. 'Teaching, then, is the thing primarily expected of the college ... Teaching is, in the last analysis, the function of the college. The quality of the teaching is the measure of the success of the college.'
>
> Perhaps, at the outset, agreement may be obtained on one pertinent fact: one element in the teaching situation is the students' reaction to the teacher. Does a student believe the teacher is competent, interesting, sympathetic, well-balanced, and so on? Questions as to the relative value of this student reaction are numerous and varied, but all admit that it has some weight. (p. 602)

The debate over the use of student ratings of instruction continues despite its fifty-year history. Many faculty members question the reliability and validity of such measures. However, in an extensive review of previous

research, Costin, Greenough and Menges (1971) stated that numerous investigators have reported acceptable stability and internal consistency estimates of student ratings of instruction. Previous research also supports the contention that the criteria used by students in their ratings of instructors had much more to do with the quality of the presentation of material than with the entertainment value of the course *per se* (Guthrie, 1954; Weaver, 1960). Such attributes as preparedness, clarity, and stimulation of students' intellectual curiosity were typically mentioned by students in describing their best instructors. Correlations between course ratings and grades received, when observed at all, tended to be small, and several studies suggested that such correlations resulted from greater interest in the course on the part of students receiving better grades, rather than from a "reward effect" (Remmers, 1960).

Deaf students' ratings of instruction have not been subjected to the same intense scrutiny as have those of hearing students. The problems of the use of psychological tests with a deaf population have been well-documented (Garrison et al., 1978; Rosen, 1967). However, most of this research has concentrated on the difficulties with the syntax and vocabulary encountered by the deaf when standard psychological tests are employed. Garrison *et al.* (1978) found that many deaf students made "idiosyncratic interpretations" of the items on the Tennessee Self Concept Scale and, hence, obtained results that falsely indicated psychological maladjustment.

The primary focus of this earlier measurement research has been on the psychological assessment of the hearing impaired. The goal of such work was usually the identification of students in need of special therapy or counseling. Frequently there was also the desire to compare deaf and hearing populations on certain personality characteristics. Recently, however, with

the increased emphasis on the design of instructional materials and instructional experiences specifically geared to a deaf population there has come an increased interest in opinion and attitude instruments. The data from such questionnaires and rating scales would be used not to prescribe special counseling but to describe deaf students' attitudes and opinions about a wide variety of topics.

One of the major questions of interest when one discusses student ratings of instruction, is the number of different factors or dimensions students use when they make judgments about an instructor or a course. Do students view teacher effectiveness as a single continuum running from good to bad, or do they make complex multidimensional judgments, seeing teachers and courses as different in a number of ways? Prior research has identified the dimensions that hearing students use to make judgments about instructors and courses. The present study, however, is the first reported work where a sufficient number of hearing impaired students completed the same instrument to allow a factor analytic examination of the ratings.

Factor Structures found in the Literature of Hearing Students

The earliest factor analyses of student ratings were performed on the ten-item Purdue Rating Scale. In separate analyses, Smalzreid and Remmers (1943), Creager (1950) and Bendig (1954) developed two-factor solutions. The items loading highly on the first factor reflected instructor competence, those loading heavily on the second factor suggested instructor empathy and rapport with students. Over the years, these factors have appeared consistently as two of the major dimensions in student ratings of instructors regardless of the instrument used. Recent investigators have extracted varying numbers of factors and have given the factors different names, but examinations of

the items loading on these dimensions reveals a core of agreement. There is good evidence for four basic dimensions: Skill, Rapport, Structure, and Difficulty. Kulik and McKeachie (1975) reviewed over 40 factor analytic studies and reported the same four common factors, although they termed their fourth factor "overload". Holzemer (1975) reported the results of 18 factor analytic studies and also found the same four basic factors, terming them personal Effectiveness (skill), Rapport, Organization and Management (structure), and Workload (difficulty).

The teaching skill dimension seems to be the most salient factor to students making an evaluation of teachers. In studies at Michigan (Isaacson, McKeachie, Milholland, Lin, Hofeller, Baerwaldt, and Zinn, 1964), for example, it was found that over half the items in a 46 item form had substantial loadings on this factor. Kulik and McKeachie (1975) likened the skill factor to a general factor. Items on a typical skill scale describe a teaching pattern in which material is presented to students in an interesting way, the intellectual curiosity of the student is stimulated, and course material is clearly explained. Ratings on all around teaching ability or all around value of the course also load highly on this dimension. Different authors have emphasized different items loading on this dimension. Items on a typical rapport scale emphasize the instructor's empathy, concern for, and interaction with students. Rapport appears to represent the same factorial dimension as instructor empathy on the Purdue Rating Scale. Another factor that appears with some regularity, group interaction, overlaps with rapport but is not identical to it. A teacher who is high on the structure factor is seen as following an outline, having the course move along according to schedule, and so on. He or she is seen as organized and prepared. A class that gets high ratings on the difficulty factor is seen by the students as demanding a large amount of work.

Table 1 gives examples of the major factors found in several studies. It is not meant to be a comprehensive listing of all studies that have reported factor analyses of student ratings of instruction (see Kulik & McKeachie, 1975, and Holzemer, 1975) but is presented for the purpose of illustration.

Insert Table 1 about here

Method

Development of Instrument

An initial set of 192 statements, each describing an aspect of instruction, was compiled from previous related efforts and from the literature on student ratings of instruction. The statements, which logically clustered into a total of 15 dimensions, were rewritten to the fifth grade reading level and then randomly ordered. A prototype instrument was prepared. The prototype instrument was administered to five classes totaling 38 students. In addition to completing the questionnaires, students were asked to circle words and statements they did not understand. Based on the results of this pilot, the number of items was reduced to 68. These items were reworked to remove vocabulary and syntactical problems discovered during the pilot study. Two forms of the instrument using the 68 items were then developed; one using a five option Likert response format (strongly agree to strongly disagree) and one using a Checklist response format. Instructions were included on both forms.

Preliminary analysis revealed that the Likert response format yielded a more interpretable factor structure which accounted for a greater percentage of the variance in students' responses and factor scale scores with higher

internal consistency reliabilities. Hence, only the results of the Likert response format are reported here.

Subjects

The subjects participating in the study were all NTID students enrolled in NTID classes. Three-hundred and eighty-five students in 79 classes were included in the data analysis. This number represented approximately half the number of students in each class. The other half of the students had completed the checklist response format. All four of the major career areas at NTID were represented and 14% of the subjects were cross-registered in RIT majors. Slightly over half the participants were first-and second-year students, the remainder third or fourth year (or more). The students were evenly divided in terms of sex, with 188 males, 164 females, and 32 not indicated. Chi-Square comparisons demonstrated that the students participating in this study did not differ significantly from the total NTID student population on the demographic variables of sex, year of entry, and percent of cross-registered students. Approximately 65% of the students were in classes that were required for their major program. The students were asked what grade they expected to receive in the course and 35% indicated they expected an "A", 44% a "B", 17% a "C", and 4% a "D" or an "F".

Procedure

Instructor's participation was obtained by the investigators through visits to departmental meetings. Attempts were made to include as wide a variety of majors as possible, and to include both introductory and advanced courses. The instrument was administered by the instructors during the last three weeks of the semester. Students completed the forms in the classroom anonymously and the instruments were returned to the principle investigators for scoring.

The data from the rating forms were typed into a computer disc file and scored by a Fortran program developed especially for this project. Instructors received computer-generated summaries of their students' responses. The summaries included item texts and explanations for all information reported.

Analysis

The 68 items of the rating scale were factor analyzed, using a variety of factor analytic techniques (principal component analysis and principal factor analysis, each with oblique and orthogonal rotations). Items that did not contribute substantially to any of the primary factors were dropped. Operationally, this meant that all the retained items loaded .35 or above on one of the primary factors.

Based on this preliminary analysis, the number of items was reduced to 30, a more feasible number for such a rating form.

Because the decision to retain thirty specific items was based on several factor analyses, there was a certain amount of investigator judgment involved. However, there was a surprising amount of consistency in the results generated from the several factor analyses. Particular mention should be made of one result that was surprising to the primary investigators. We had anticipated that a "communications factor" would emerge, containing items that asked about the instructor's expressive and receptive manual communication skills. Items such as "the teacher's total communication was easy to understand" and "the teacher understood me when I used total communication" (there were four such items in the original 68 item form) not only did not cluster together to form a separate communications factor, they did not load highly on any factor and hence were dropped.

The reduced set of 30 items was factor analyzed using a principal factor analysis with rotation against the varimax criterion. The resulting factors

were identified and labeled. The factors were then inspected to determine how closely they appeared to correspond with prior research on student ratings of instruction with hearing students. The readers should note that the particular rating scale used in this study was not given to hearing students. The instrument was carefully developed to fit the needs of hearing impaired students in terms of item syntax and vocabulary level. However, certain factors seem to emerge when student ratings of instruction are factor analyzed regardless of differences in instruments and in student population. We were attempting to discover if these same factors (or similar ones) would emerge when the responses of hearing impaired students were factor analyzed. If the factors or dimensions were similar then this would imply that hearing impaired students use the same underlying dimensions to make judgements about instructors and courses as do their hearing counterparts.

Results

Five factors accounting for 59% of the variance emerged when the reduced set of 30 items were factor analyzed. The results of the principle factor analysis are summarized in Table 2.

Insert Table 2 About Here

The first and most salient factor was labeled "Practical Gain". It is characterized by high loadings on such items as: "This course will help me when I get a job"; "This course will help me in some of my other courses"; and "I learned to solve real work problems".

The second factor was labeled Instructor Personality. Items loading high on this factor were: "The teacher was interested in students as people";

The teacher was an enthusiastic and warm person"; and "The teacher praised good work". The third factor was clearly an overload or Difficulty factor. High loading items were: "The tests were too hard"; "The course was too hard"; and "Too much work was assigned out of class".

The fourth factor was labeled Teacher Skill and was characterized by items such as: "The instructor explained things clearly"; "The teacher made good use of examples and illustrations"; and "The lectures were organized and easy to understand".

The fifth and final factor was labeled Student Personal Gain. High loading items were: "This course helped me to understand my own strengths"; "This course made me think about many of my own attitudes"; and "This course was very useful".

Factor scale scores based on the best six marker variables for each factor were developed. In addition, an overall dimension score was computed for each student based on three "overall" items (which were excluded from the factor analyses). The three items comprising the overall dimension are:

- All things considered this course was excellent
- I would recommend this teacher to my friends
- I would recommend this course to my friends.

Factor scales are developed by simply summing the chosen item scores. It was decided to use factor scales rather than factor scores because of ease of computation, increased reliability, and ease of interpretation by instructors. Factor scales increase reliability at the expense of orthoganality. For a discussion of factor scores and factor scales see Armour (1974).

Descriptive statistics, reliability estimates (internal consistency) and inter-score correlations were then computed for each of the newly developed factor scales. Table 3 presents the descriptive statistics for each of the factor scales.

Insert Table 3 About Here

Table 4 gives the Hoyt reliability estimates for each factor scale, plus the interscale correlation coefficients. The reliability estimates are all in the high acceptable range for attitude instruments, particularly when considering that each factor scale is only comprised of six items. The lowest reliability shown (.74) is that for the overall dimension and simply reflects the small number of items that comprise that dimension.

Insert Table 4 About Here

DISCUSSION

The results reported in this study indicate that deaf post-secondary students do indeed use several dimensions to rate their instructors and courses, and that these dimensions are very similar to those found with their hearing counterparts. This is the first reported study where a sufficient number of deaf students completed the same instrument to allow such a factor analytic examination of the ratings.

Two points should be noted here. First, the particular factors obtained in any given study are in part dependent upon the items included. For example, if an instrument does not contain items that ask about the difficulty or workload of a course, no workload/difficulty factor will emerge. Yet, if such items are included previous research indicates that such a factor will almost always emerge, as it did in the present study. Secondly, the naming

of factors is the result of considerable subjective interpretation. Readers who are interested in the items that comprise a given factor are directed to Table 2.

Three of the factors found in this study precisely match those found in the literature dealing with student ratings of instruction by hearing students. They are: Instructor Skill, Instructor Personality (sometimes termed rapport) and Difficulty. The other two factors are more concerned with students perceived gain from a course and/or instructor and from the course and/or instructor characteristics. These two factors are not so frequently mentioned in the literature, but as illustrated by Table 1, neither are they unknown. A possible explanation for the relative rarity of the two student "gain" factors is that many student rating of instruction forms simply do not ask the students what they "gained" from the course. Instead, many forms limit their queries to instructor and course characteristics.

It was already mentioned in the results section, that items relating to instructor manual communication skills were dropped from the final form because of low loadings on all of the factors. Several hypotheses could be put forward to explain these results. The principal investigators favor two related explanations. First, almost all of the NTID teaching faculty have obtained some minimum level of competence with manual communication and hence the problem of simply receiving the instructor's message simply does not exist to any great degree. The question of competence in manual communication then becomes absorbed in the larger question of clarity of explanation, well organized and understandable lectures, etc. In other words, manual communication is simply one part of the dimension we have labeled "Instructor Skill."

Perhaps the salience and order of the factors is of greater interest. Kulik and McKeachie (1975) pointed out the "Skill" factor is by far the most important factor in most forms, and often over half the items in a rating form load on this factor. In the present study, although Instructor Skill was the second most important factor to emerge (accounting for 10.8% of the variance), it was far outweighed in importance by Practical Gain which accounted for 31.3% of the total variance. It is impossible to tell if this difference is due to a true difference in perception between hearing and hearing impaired students or if the same results would occur if hearing impaired students were more frequently asked questions about their gain in the course. The authors prefer the latter explanation since an early study with 1700 hearing students using a rating form that did contain items concerned with student "gain" also found a factor (in that case labeled cognitive gain) to be stronger than the instructor Skill factor (McKee, 1977).

We can therefore conclude with some confidence that there is little difference between the dimensions used by deaf or hearing post-secondary students to rate their instructors and courses.

Summary

The results of this study led the investigators to conclude that hearing impaired students do make a multi-dimensional evaluation when they rate their instructors and courses and that these dimensions are very similar to those employed by their hearing counterparts. Further, the authors also conclude that the rating form designed for hearing impaired students yielded acceptable psychometric characteristics. Specifically, a clearly evident factor structure and high internal consistency for factor scale scores developed from that factor structure were observed. The results also imply that the voluminous

body of literature dealing with the reliability and validity of hearing student ratings of instruction is relevant to the hearing impaired population.

References

Armour, D. Theta Reliability and Factor Scaling. In H. Cosener (Ed.). Sociological Methodology. Washington, D.C.: Jossey-Bass, 1974.

Bendig, A. W. A factor analysis of student ratings of psychology instructors on the Purdue Scale. Journal of Educational Psychology, 1954, 45, 385-393.

Costin, F., Greenough, F., and Menges, R. Student ratings of college teaching: reliability, validity and usefulness. Review of Educational Research, 1971, 41, 511-535.

Garrison, W. DeCaro, P., Tesch, S., and Emerton, R.G. Deafness and self-disclosure: Some problems in interpreting self-concept measures. Paper Series 24. Department of Research and Development, Rochester, N.Y.: National Technical Institute for the Deaf, 1978.

Guthrie, E.R. The evaluation of teaching: a progress report. Seattle: University of Washington, 1954.

Holzemer, W. L. Student ratings of instructional effectiveness and their relations to the college classroom environment. Unpublished doctoral dissertation, Syracuse University, 1975.

Isaacson, R. L., McKeachie, W. J., Milholland, H. E., Lin, Y. G., Hofeller, M., Baerwaldt, J. Q., & Zinn, K. L. Dimensions of student evaluations of teaching. Journal of Educational Psychology, 1964, 55, 344-351.

Kulik, J. A., & McKeachie, W. J. The evaluation of teachers in higher eucation. In F. N. Kerlinger (Ed.), Review of research in education (Vol. 3). Itasaca, Ill.: Peacock, 1975.

McKee, B. G. The relationship between college students' ratings of instruction and their course-oriented attitudes. Unpublished doctoral dissertation, Syracuse University, Syracuse, New York, 1977.

Remmers, H. H. The college professor as the student sees him. Purdue University Studies in Higher Education, 1929, 11, 63.

Remmers, H. H. Manual, the Purdue Rating Scale for instruction. West Lafayette, Indiana: University Book Store, 1960.

Rosen, A. Limitation of personality inventories for use with deaf children and adults. Journal of Rehabilitation of the Deaf, 1967, 1(2), 47-52.

Smalzreid, N. T., & Remmers, H. H. A factor analysis of the Purdue Rating Scale for instructors. Journal of Educational Psychology, 1943, 34, 363-367.

Weaver, C. H. Instructor rating of college students. Journal of Educational Psychology, 1969, 51, 21-25.

Table 1
Major Factors Found in Eight Studies of Student Ratings of Instruction

Study	Instructor Skill	Instructor Rapport	Course Structure	Difficulty	Other Factors
Desphande et al. (1970) 2rd order factors	Stimulation	Affective Merit	Cognitive Merit	Stress	None
Fenbeiner et al. (1973)	General Course attitude	Instruc./Student rapport	Attitude toward method	Attitude toward workload	Attitude toward examination
Desplande, Webb, & Marks 1970	Stimulation	Affective Merit	---------	Stress	Cognitive Merit
Gibb (1955)	Communication	Friendly democratic	Organization	Academic emphasis	None
Coffrey (1969)	Teaching Ability	Feedback to Students	Structure	Overload	Negative Attitude
Frey (1973)	Teacher accessibility	Teacher presentation	---------	Workload	Grading Procedure
Harley & Hogan (1972)	Overall evaluation	Student-teacher interaction	Organization or structure	Load or Difficulty	None
McKee (1977)	Faculty teaching	Faculty empathy towards students	Course organization	Workload	Student cognitive gain Student personal gain Tests

TABLE 2

Five Factor Structure of Principal Factor Analysis with Varimax/Rotation for Reduced Set of Items

Item	Factor 1. Student Practical Gain	Factor 2. Instructor Personality	Factor 3. Difficulty	Factor 4 Instructor Skill	Factor 5. Student Personal Gain
40. This course will help me when I get a job	.753	.077	-.113	.044	.077
37. This course will help me in some of my other courses	.598	.098	-.069	.124	.192
39. I learned to solve real work problems	.583	.075	.097	.124	.206
60. I learned new methods for solving problems	.560	.162	.021	.251	.201
36. I learned skills needed by workers in this field	.516	.108	-.049	.135	.125
10. I learned a lot of facts in this course	.401	.159	-.118	.284	.334
45. The teacher was an enthusiastic and warm person	.119	.747	-.116	.142	.091
3. The instructor was not prepared for class	.057	.644	-.134	.100	.090
50. The teacher took an active, personal interest in the progress of the class	.120	.630	-.085	.186	.169
44. The teacher was not very interested in students as people	-.087	-.615	.176	-.169	-.017
1. The teacher was interesting	.159	.532	-.048	.329	.192
6. The teacher praised good work	.188	.479	-.099	.346	.180
66. The course was too hard	.007	.076	.800	-.103	-.119
63. There was too much work and it was too difficult	.006	-.085	.793	-.089	-.063
67. Too much work was assigned outside of class	.040	-.114	.642	-.095	-.055
62. The test was too hard	-.075	-.055	.641	-.037	-.066
04. It was difficult to learn all the information	.056	-.098	.558	-.157	-.055
24. Sometimes, I didn't know what was expecced of me	-.102	-.096	.438	-.140	.090
16. The instructor explained things clearly	.231	.294	-.195	.725	.077
17. The teacher made good use of examples and illustrations	.1554	.330	-.157	.665	.146
18. The new words and ideas were explained very well	.184	.290	-.241	.640	.079
19. The lectures were organized and easy to understand	.289	.278	-.260	.612	.041
23. The teacher answered questions clearly	.250	.330	-.207	.546	.160
51. The instructor created a good feeling in the classroom	.160	.615	-.017	.311	.238
33. This course helped me to learn more about myself	.323	.107	-.049	.113	.785
31. This course made me think about many of my atttiudes	.262	.187	-.063	.008	.731
32. I talked with friends about things I had learned in class	.221	.159	-.029	.057	.561
30. This course helped me to understand my own strengths	.571	.218	-.091	.193	.484
49. This course did not help me understand myself	-.262	-.215	.174	-.255	-.443
34. This course was very useful	.577	.266	-.049	.185	.433

TABLE 3

Descriptive Statistics for Factor Scale Scores

Variable	N of Items	Mean	Low Score	High Score	Standard Deviation
1. Practical Gain	6	22.8	4.00	30.0	4.31
2. Instructor Personality	6	25.3	9.00	30.0	3.86
3. Difficulty	6	15.5	.00	29.0	4.93
4. Instructor Skill	6	24.9	11.00	30.0	3.94
5. Student Personal Gain	6	23.4	.00	30.0	4.62
6. Overall	3	11.7	2.00	15.00	2.71

TABLE 4

Interscore Correlations for Factor Scale Scores*

Variable	Variable 1	2	3	4	5	6
1. Practical Gain	.79					
2. Instructor Personality	.368	.80				
3. Difficulty	-.017	-.224	.83			
4. Instructor Skill	.505	.670	-.291	.85		
5. Student Personal Gain	.677	.431	-.120	.431	.85	
6. Overall	.526	.512	-.172	.556	.512	.74

*Pearson-Product-Moment; diagonal entries are Hoyt estimates of reliability.

B.McKee-3
(11/12/79)jh